

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A node controller for a node in a data storage system having at least two nodes, each node comprising one computer-memory complex and one the node controller being distinct from [[a]] said one computer-memory complex of the node, the node controller being operable to transfer data between the two nodes as instructed by the a computer-memory complex of the node but without any further intervention by the computer-memory complex, the node controller comprising a cluster memory for storing the data being transferred between the two nodes.

Claim 2 (canceled).

3. (previously presented) The node controller of Claim 28 wherein the at least one data source is one of an interconnect link, a peripheral component interconnect (PCI) bus, or a cluster memory.

4. (previously presented) The node controller of Claim 28 wherein the logic engine comprises an exclusive OR engine.

5. (currently amended) The node controller of Claim 28 comprising a command queue operable to store a logic control block to be processed by the logic engine, the logic control block specifying said at least one data source and said at least one data destination.

6. (currently amended) The node controller of Claim 1 comprising a memory controller operable to interface with [[a]] the cluster memory in the node.

7. (original) The node controller of Claim 1 wherein the node controller is implemented as an integrated circuit device.

8. (original) The node controller of Claim 1 comprising a peripheral component interconnect (PCI) control interface operable to support an interface between the node controller and a PCI bus.

9. (currently amended) A node controller ~~for transferring data through a node of a data storage system;~~ for a node in a data storage system having at least two nodes, each node comprising one

computer-memory complex and one the node controller being distinct from [[a]] said one computer-memory complex of the node, the node controller comprising:

a plurality of logic engines each operable to perform a logic operation on storage data originating from at least one data source in the data storage system and to write a result of the logic operation to at least one data destination in the data storage system, the logic engine performing the logic operation as instructed by a computer-memory complex of the node but without any further intervention by the computer-memory complex; and

command queues coupled to the logic engines, the command queues operable to store logic control blocks which can be processed by the logic engines.

10. (original) The node controller of Claim 9 wherein the at least one data source is one of an interconnect link, a peripheral component interconnect (PCI) bus, or a cluster memory.
11. (previously presented) The node controller of Claim 9 wherein at least one of the logic engines comprises an exclusive OR engine.
12. (original) The node controller of Claim 9 comprising a memory controller operable to interface with a cluster memory in the node.
13. (original) The node controller of Claim 9 wherein the node controller is implemented as an integrated circuit device.
14. (original) The node controller of Claim 9 comprising a peripheral component interconnect (PCI) control interface operable to support an interface between the node controller and a PCI bus managed by the computer-memory complex.

Claim 15 (canceled).

16. (previously presented) The node controller of Claim 9 comprising:

a producer register operable to specify a first address of a command queue; and
a consumer register operable to specify a second address of a command queue.

Claim 17 (canceled).

18. (currently amended) A node controller ~~for transferring data through a node of a data storage system; for a node in a data storage system having at least two nodes, each node comprising one computer-memory complex and one node controller distinct from said one computer-memory complex,~~ the node controller comprising:

a memory controller for coupling to (1) a cluster memory and (2) a backplane, wherein the backplane can be coupled to a plurality of other node controllers in the data storage system;

a plurality of input/output interfaces for coupling to a computer-memory complex of the node and a plurality of devices on a plurality of buses, the plurality of input/output interfaces being coupled to the memory controller;

a plurality of logic engines coupled to (1) the memory controller and (2) the backplane;

wherein in a first type of data transfer, one of the logic engines performs a logic operation to a plurality of storage data from one of a plurality of data sources in the data storage system and writes the result of the logic operation to one of a plurality of data destinations in the data storage system, the data sources comprising the cluster memory and the input/output interfaces, the data destinations comprising the cluster memory, the backplane, and the input/output interfaces.

19. (currently amended) The ~~controller-node~~ node controller of claim 18, wherein in a second type of data transfer, one of the data sources writes a data into the memory and in response one of the logic engines copies the data to at least one of the data destinations.

20. (currently amended) The ~~controller-node~~ node controller of claim 19, wherein each of the devices is selected from the group consisting of a host device and a data storage device.

21. (currently amended) The ~~controller-node~~ node controller of claim 20, wherein each of the input/output interfaces comprises a peripheral component interconnect (PCI) controller and each of the buses comprises a PCI bus.

22. (currently amended) The ~~controller-node~~ node controller of claim 21, wherein the computer-memory complex manages the PCI bus.

23. (currently amended) The ~~controller node~~ node controller of claim 22, wherein the computer-memory complex supports a service selected from the group consisting of a HTTP service, a NFS service, and a CIFS service.
24. (currently amended) The ~~controller node~~ node controller of claim 18, wherein the computer-memory complex is not burdened with temporarily storing data being transferred through the node in the computer-memory complex.
25. (currently amended) The ~~controller node~~ node controller of claim 18, wherein the logic operation comprises an XOR operation.
26. (currently amended) The ~~controller node~~ node controller of claim 25, wherein the XOR operation is used to calculate a parity data for writing a full or a partial RAID stripe.
27. (currently amended) The ~~controller node~~ node controller of claim 25, wherein the XOR operation is used to reconstruct a lost data using a parity data.
28. (currently amended) The node controller of Claim 1, wherein the node controller comprises a logic engine operable to perform a logic operation on data from at least one data source in the data storage system and to write a result of the logic operation to at least one data destination in the data storage system.
29. (currently amended) A node controller for a first node in a data storage system comprising at least the first node and a second node, each node comprising one computer-memory complex and one the node controller ~~being~~ distinct from ~~[[a]]~~ said one computer-memory complex ~~of the first node~~, the node controller comprising:
- a memory controller for accessing a ~~cache~~ cluster memory of the first node;
 - one or more bus interfaces for communicating with a host device, a data storage device, and the a computer-memory complex of the node all located on one or more buses;
 - a link to the second node;
- wherein in a first type of data transfer:

the computer-memory complex instructs the data storage device to write a data into the memory;

the data storage device writes the data into the memory via the one or more buses;

the computer-memory complex instructs the node controller to send the data to the second node; and

the node controller sends the data to the second node via the link.

30. (currently amended) The node controller of claim 29, further comprising:

a logic engine;

wherein in a second type of data transfer:

the computer-memory complex instructs the node controller to perform a logic operation to a plurality of storage data in the memory;

the node controller uses the logic engine to perform the logic operation to the plurality of data.

31. (previously presented) The node controller of claim 30, wherein the second type of data transfer further comprises:

the computer-memory complex instructs the node controller to send a result of the logic operation to the second node; and

the node controller sends the result to the second node via the link.

32. (currently amended) The node controller of claim 30, wherein in a third type of data transfer:

the computer-memory complex instructs the data storage device to write the data into the memory;

the data storage ~~devices~~ device writes the data into the memory via the one or more buses;

the computer-memory complex instructs the host device to read the data from the memory; and

the host device reads the data form the memory via the one or more buses.

33. (new) The node controller of Claim 9 wherein said at least one data source is one of an interconnect link, a peripheral component interconnect (PCI) bus, or a cluster memory.

34. (new) The node controller of Claim 28 wherein said at least one data destination is one of an interconnect link, a peripheral component interconnect (PCI) bus, or a cluster memory.